

A New Genus and Three New Species of Pteridophytes from North Eastern Queensland

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Abstract

A new genus, *Coveniella* (Dryopteridaceae), composed of a single species, *C. poecilophlebia* (Hook.) Tind., **comb. nov.**, is described. Two species of *Lastreopsis* (Dryopteridaceae) viz. *L. tinaroensis* and *L. walleri* as well as a species of *Diplazium* (Athyriaceae) viz. *D. queenslandicum* are also described as new.

Coveniella Tind., *gen. nov.* (Fig. 1)

Coveniella Tind.; a *Lastreopsis* differt lamina 1- pinnata, venis pro majore parte anastomosantibus, ex parte omnino liberis, costulis 25-46-jugatis, prominulis, plus minusve parallelis, utroque latere venulis 4-7 obliquis instructis, venulis infimis liberis quarum una e costa exorta, in venulis 1-3 medianis ramulo congruenti e costula contingua respondentis in venulam brevem plerumque liberam excurrentem conjuncto, venulis superioribus plerumque liberis usque ad marginem pinnae attingentibus, soris inter costulas irregulariter biseriatim dispositis. — Type species: *Coveniella poecilophlebia* (Hook.) Tind. **comb. nov.**

Coveniella poecilophlebia (Hook.) Tind. **comb. nov.**

Fig. 1

Polypodium poecilophlebium Hook. Sp. Fil. 5: 14 (1863). — Type: Dunk Island, NE. coast of Australia, Voyage of the Rattlesnake. Macgillivray (K. holo), n.v.

Terrestrial fern. Rhizome long-creeping, radial, dictyostelic, clothed with short, very broadly ovate, dark brown, denticulate scales with 1-3 golden glands on the margin. Stipes erect, never articulated to the rhizome, having several, distinct vascular bundles, with the xylem strands of the larger adaxial vascular bundles with hooked ends. Lamina 1-pinnate, 15-30 cm long, 10-30 cm broad, chartaceous, catadromous except in the lowest pinnae. Pinnae 12-23 cm long, 2-4.5 cm broad, oblong or narrowly lanceolate, with 1-6 lateral pairs and a similar terminal pinna, the lowest not reduced, the apex acuminate or rarely obtuse, the margin undulate or crenate but serrate towards the apex, unequally cuneate at the base. *Ctenitis*-hairs 5-12-celled, scattered along the rhachises, costae, costules and veinlets. Rhachis not deeply grooved above, the median portion slightly elevated, clothed above and below with stiff antrorsely curved, 3-4-celled hairs, the margins of the groove confluent with the decurrent margins on the bases of the pinnae. Costae raised on the upper surface, clothed below with linear or lanceolate, attenuated scales with the margin fimbriate towards the base. Veins anastomosing for the greater part, in part *quite free*. Costules 25-46-jugate, prominent, more or less parallel, 3-6 mm apart, with 4-7 oblique veinlets on each side; with the lowest veinlets free, one of them arising from the costa, in the 1-3 middle veinlets the corresponding branchlet from the contiguous costule joined in a short, usually free, excurrent veinlet, with the upper veinlets mostly free, reaching the margin of the pinna. Sori orbicular, exindusiate, 0.4-0.8(-1.0) mm in diameter, mostly borne on the middle of the veinlets or sometimes towards the apex of the veinlets or at the

junction of the veinlets, in 2 irregular rows between the costules. Sporangia with 13-17 indurated cells of the annulus; pedicel long, bearing 1-2 glandular, sessile, oblong, unicellular, golden hairs. Spores bilateral, monoletic, globoso-ellipsoidal or almost globose, brown, with ruguloso-saccate perispores. Glandular, oblong, appressed, unicellular, golden hairs sparsely clothe the lamina, rhachises, costae, costules and veins.

Distribution. terrestrial in rainforests often near streams and lakes in the Cook and Kennedy Districts of NE. Queensland.

Selected Specimens Examined: QUEENSLAND. Cook District: Iron Range, June 1948, *L.J. Brass 19151* (BRI, K); Whitfield Range, July 1964, *A.W. Dockrill W 10* (K, NSW). North Kennedy District: Conway State Forest, between Airlie and Shute Harbour, June 1965, *L.J. Webb and T.G. Tracey 7578* (BRI, CANB).

Chromosome Counts: $2n = 82$, $n = 41$, (diploid). Voucher: S.F.R. 185, Downfall L.A., Queensland, *A.W. Dockrill 1115* (NSW), (pers. comm. S.K. Roy).

This new monotypic genus is named in honour of Mr. Robert G. Coveny, Botanical Collector at the Royal Botanic Gardens, Sydney, in gratitude for his continued assistance in obtaining material for my researches on pteridophytes.

I am including *Coveniella* in the *Ctenitis-Lastreopsis* group of genera in the family Dryopteridaceae, because it is characterized by the following features: (1) orbicular sori; (2) several, small, distinct vascular bundles in the stipes; (3) multicellular *Ctenitis*-hairs with dark red septae on the fronds; (4) golden, 1-celled, glandular hairs on the fronds as well as 1-2 on the long narrow pedicels of the non-setose sporangia; and (5) basic chromosome number of 41. It differs from *Ctenitis* and *Lastreopsis* which have free veins in their decompound laminas, whereas in *Coveniella* the 1-pinnate laminas have a very complex, partly meniscoid venation. The most outstanding characteristic of the new genus is the nature of the basal veinlets which are always free, ending blindly and one of them very often arises from the costa between the costules.

C. poecilophlebia superficially resembles some members of the family Thelypteridaceae but the latter have needle-like hairs on the fronds, stipes with 2 vascular bundles at the base soon uniting to form a single strand (U-shaped in section) and the basic chromosome number ranges from 27 to 36 (except 33).

***Lastreopsis tinarooensis* Tind., sp. nov.**

Fig. 2

Lastreopsis tinarooensis Tind., a *L. grayi* D. Jones stipitibus non profunde sulcatis pilis typi *Ctenitidis* circiter 0.1 mm longis subtus vestitis, rhachidibus secundariis inconspicue alatis, pinnis quaternariis in lobulos 3-5 spatulatos late dispositos usque ad 2.5 mm longos profunde divisis, sporangiis usque ad 50 per sorum, statim diagnoscenda. — Type: Queensland, Cook District, State Forest Reserve, 185, Kalaroma L.A., 17° 06'S 145° 35'E, on rocks in very shady humid creek, alt. 1000 m. *B. Gray 1398* (QRS, holo; NSW, iso).

Lastreopsis tinarooensis Tind. is readily distinguished from *L. grayi* by the shallowly grooved stipes clothed on the lower surface with *Ctenitis*-hairs about 0.1 mm long, by the inconspicuously winged secondary rhachises, by the quaternary pinnae deeply divided into 3-5 spatulate, widely spaced lobules up to 2.5 mm long and by up to 50 sporangia per sorus.

Distribution. terrestrial in rainforests of the Cook District, NE. Queensland.

Specimens Examined: QUEENSLAND. Cook District: Tinaroo Hills, Atherton Tableland, *D. Jones (BRI 200744-5)*; Mt Lewis, Sept 1977, *J.A. Armstrong 1073A* (NSW); near Danbulla, ca 3400 ft [ca 1020 m], Nov 1942, *S.T. Blake 14752A (BRI 165807)*.

Chromosome Counts: $2n = 82$, $n = 41$. Voucher: *J.A. Armstrong 1073A* (NSW), (pers. com. S.K. Roy).

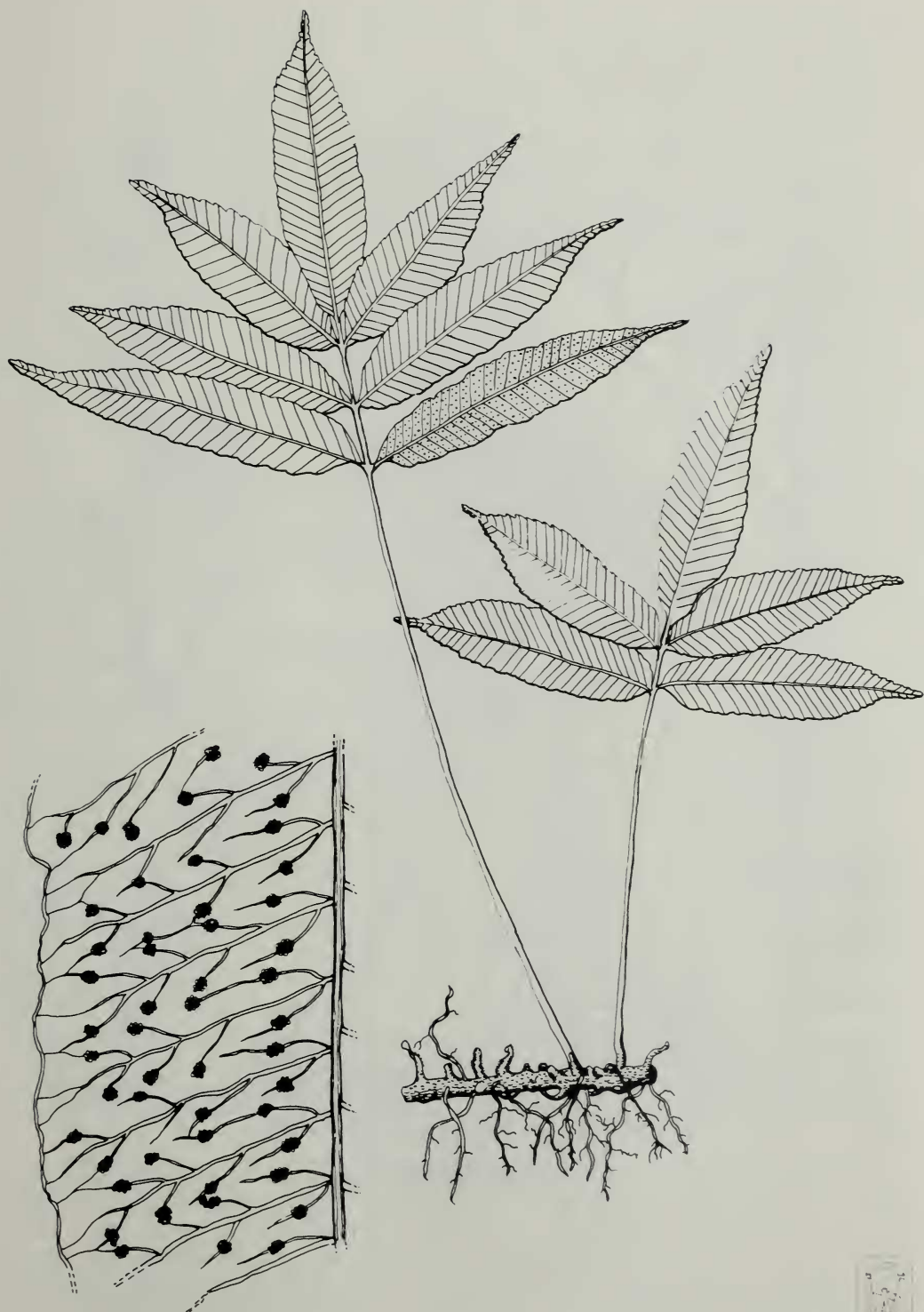


Fig. 1. *Coveniella poecilophlebia* (Hook.) Tind.
 a. habit study, $\times \frac{1}{2}$; b. portion of pinna with sori, $\times 3$. — a-b from L.J. Brass 20175.



Fig. 2. *Lasteopsis tinarooensis* Tind.

Ba, lowest primary pinna, $\times \frac{2}{3}$. Bb, tertiary pinna with sori, $\times 4$. Bc, upper surface of rachises, $\times 4$. Bd, rhizome, $\times \frac{1}{3}$.

This species is closely allied to *Lasteopsis grayi* D. Jones in *Muelleria* 3: 245-249 (1977). The differences between these two species are discussed in detail by Jones (*l.c.* p. 248), *L. tinarooensis* being cited as *Lasteopsis* sp. pending my publication of this new taxon. Both species are figured (*l.c.* p. 247).

Lasteopsis walleri Tind. sp. nov.

Fig. 3

Lasteopsis walleri Tind.; a *L. tenera* (R. Br.) Tind. rhizomate valde robusta breviter repenti 1-2.5 cm crasso, rhizomatis stipitis rhachidisque paleis margine et pagina setis numerosis instructis et apice excepto pinnulis basiscopis sessilibus nullis ad rhachidem primariam adnatis statim diagnoscenda. — Type: Queensland, Cook District, Allumbah, (Herberton) Feb. 1910, *R.F. Waller NSW 1576* (NSW, holo).

Lasteopsis walleri Tind. is readily distinguished from *L. tenera* by its very robust, shortly creeping rhizome 1-2.5 cm broad, by the numerous setae on the margin and surface of the scales of the rhizome, stipe and rachis, and except at the apex by the lack of the basiscopic sessile pinnules adnate to the primary rachis.

Distribution. terrestrial in rainforests of the Cook District, NE. Queensland.

Specimen Examined: QUEENSLAND, Cook District: S.F.R. 251, Charmillin L.A., 17° 40'S, 145° 30'E, alt. 750 m, Sept 1976, *A.M. Dockrill 1268* (BRI 228508-14).

The channel on the upper surface of the main rhachis is poorly defined except near the base, and the 2 ridges on the upper surface are also less prominent than in

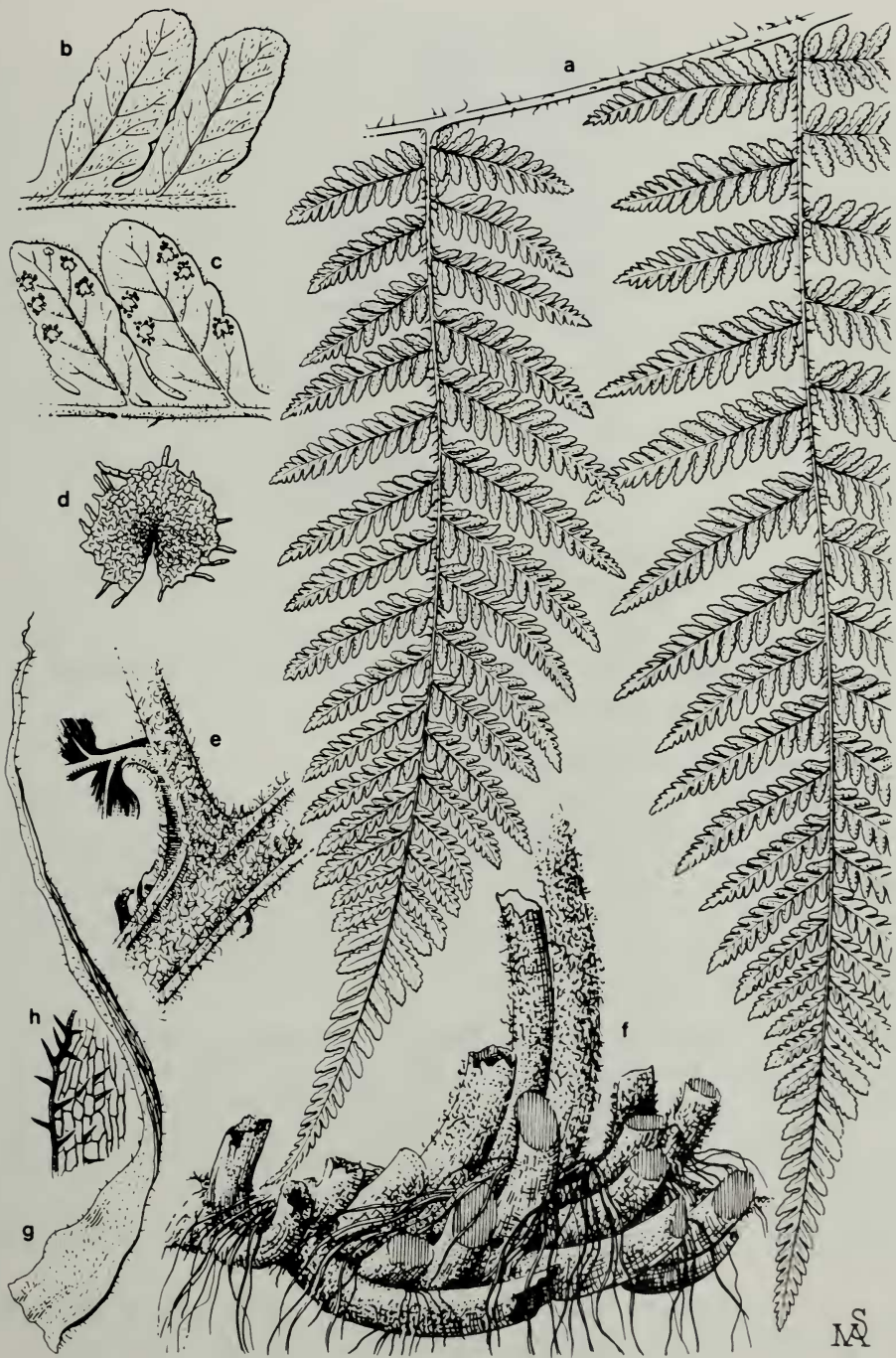


Fig. 3. *Lastreopsis walleri* Tind.
 a, two primary pinnae, $\times \frac{2}{3}$; b, adaxial surface of two tertiary pinnae, $\times 4$; c, abaxial surface of two tertiary pinnae with sori, $\times 4$; d, indusium, $\times 33$; e, adaxial surface of rhachises, $\times 4$; f, rhizome, $\times \frac{2}{3}$; g, scale of rhizome, $\times 8$; h marginal cells of rhizome scale, $\times 33$.

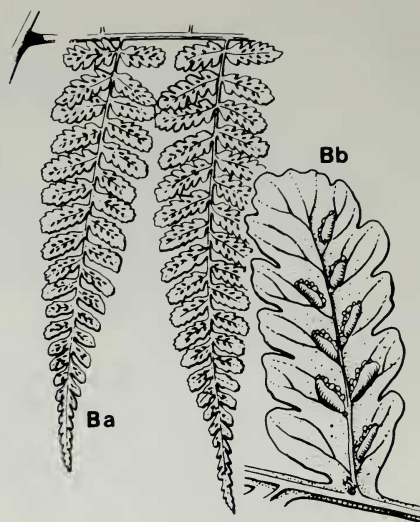


Fig. 4. *Diplazium queenslandicum* Tind.
Ba, two fertile secondary pinnae, $\times \frac{2}{3}$. Bb, tertiary pinna with sori, $\times 4$.

the other species of *Lastreopsis* except *L. tenera*. However these 2 ridges are continuous with the slightly thickened leaf-margins of the ultimate segments of the primary pinnae as in all species of this genus.

***Diplazium queenslandicum* Tind. sp. nov.**

Fig. 4

Diplazium queenslandicum Tind: a *Diplazio assimili* (Endl.) Beddome differt frondibus maioribus, atroviridibus, saepe 150-200 cm longis, 75-90 cm latis, caudice erecto, crasso, usque 1 m alto et 15 cm diametro, paleis caudicis obscuris, maioribus, 9-17 mm longis et 2.5-5 mm latis; pinnis secundariis numerosioribus, caudatis et 19-33-jugis; pinnulis tertiariis truncatis vel late rotundatis, 6-14-jugis, pinnulis tertiariis infimis plerumque 6-12 mm longis et 3-6 mm latis. — Type: Queensland. Cook District: Palmerston National Park, growing along old snigging track in rainforest ca 1 mile [1.6] km S. of Highway and ca 20 miles [32.3 km] WSW. of Innisfail, alt. ca 2100 ft [630 m] 14 Sept. 1960, *L.S. Smith 11270* (BRI 29863-5, holo; NSW, iso).

Diplazium queenslandicum Tind. differs from *Diplazium assimile* in its larger, dark green fronds 150-200 cm long and 75-90 cm broad, in its erect, thick caudex up to 1 m high and 15 cm in diameter, in its larger, dull caudex scales 9-17 mm long and 2.5-5 mm broad, by the more numerous, caudate secondary pinnae 19-33-jugate, by the truncate or broadly rounded 6-14-jugate tertiary pinnules and by the lowest tertiary pinnules usually 6-12 mm long and 3-6 mm broad.

Distribution. terrestrial in rainforests of the Cook District, north-eastern Queensland.

Selected Specimens Examined: QUEENSLAND: Cook District: Tinaroo Range, alt. 3500 ft [ca 1050 m], Feb. 1962, *L.J. Webb and J.G. Tracey 5779* (BRI); back of Bartle Frère, July 1913, *W.W. Watts* NSW P978; Mt Spurgeon, Root Creek, Sept 1936, *C.T. White 10607* (BRI).

D. queenslandicum is closely allied to *D. assimile* which occurs in Norfolk Island and Australia (south-eastern Queensland and north-eastern New South Wales). The latter species is a smaller fern ca 40-120 cm high, with light green fronds and an erect caudex (up to 4 cm high) bearing lustrous scales 5-8 mm long and 1.5-3 mm broad.

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